

## **AMENDMENTS TO THE CLAIMS**

The following listing of claims will replace all prior versions and listings of claims in the application.

### **LISTING OF CLAIMS**

1. (currently amended) A phased array antenna system for a mobile platform comprising:

a transmit antenna disposed within ~~at least one~~ a first antenna housing;

a receive antenna disposed within ~~said at least one~~ a second antenna housing, said second antenna housing independently mountable from the first antenna housing;

said receive antenna operating to receive a receive antenna signal and to convert said receive antenna signal to an aircraft communication frequency signal before outputting said receive antenna signal from said ~~at least one~~ second antenna housing; and

said transmit antenna operating to transmit a transmit antenna signal and to convert said aircraft communication frequency signal into said transmit antenna signal within said ~~at least one~~ first antenna housing[[-]] ;

wherein each of said first and second antenna housings are adapted for externally mounting to the mobile platform, said first and second antenna housings being mounted in a front-to-back linear arrangement with respect to each other.

2. (currently amended) The antenna system of claim 1 further comprising:  
a converter disposed within each of ~~the at least one antenna housing~~ said first and second antenna housings;  
an aircraft transfer power in communication with said converter;  
and  
said converter converts said aircraft transfer power to a phased array antenna power.

3. (currently amended) The antenna system of claim 1 further comprising:  
a first frequency converter disposed within said ~~at least one~~ second antenna housing for converting said receive antenna signal to said aircraft communication frequency signal; and  
a second frequency converter disposed within said ~~at least one~~ first antenna housing for converting said aircraft communication frequency signal to said transmit antenna signal.

4. (original) The antenna system of claim 3 further comprising;  
said receive antenna signal comprising a first signal, said first signal being in a frequency range of about 12 gigahertz to about 20 GHz;  
said aircraft communication frequency signal comprising a second signal having a frequency of about 1 gigahertz; and  
said transmit antenna signal comprising a third signal, said third signal being in a frequency range of about 14 gigahertz to about 44 GHz.

5. (canceled)

6. (currently amended) A phased array antenna communication system for external mounting on a mobile platform comprising:

a pair of antennas being one each of a transmit antenna and a receive antenna;

a transmit antenna housing for enclosing the transmit antenna and a transmit antenna equipment group;

a receive antenna housing independently positionable from the transmit antenna housing for enclosing the receive antenna and a receive antenna equipment group;

each equipment group being in electrical communication with an aircraft communication signal, said signal having an operating frequency ranging from an ultra-high frequency to an L-band frequency;

an aircraft mounted converter to convert an aircraft service voltage to an antenna power transfer voltage; and

each antenna housing having a transfer converter to convert said transfer voltage to an antenna operating voltage~~[[ - ]]~~ and each adaptable for external mounting to the mobile platform;

wherein a depth of said transmit and receive antenna housings is determinable by a space envelope of the transmit and receive antennas, said transmit antenna equipment group and said receive antenna equipment group being each

positionable adjacent the space envelope of respective ones of the transmit and receive antennas within their respective housings without increasing said depth.

7. (original) The communication system of claim 6 further comprising:  
said transmit antenna housing having an upper surface and a first set of phased array antenna elements arranged in a grid formation on the transmit antenna upper surface; and

said receive antenna housing having an upper surface and a second set of phased array antenna elements arranged in the grid formation on the receive antenna upper surface.

8. (original) The communication system of claim 7 further comprising:  
each antenna housing having an internal volume;  
each set of phased array antenna elements occupies a first portion of each housing internal volume; and  
a preselected one of the transmit antenna equipment group and the receive antenna equipment group occupies a second portion of each housing internal volume.

9. (original) The communication system of claim 6 further comprising:  
each antenna being in electrical communication with an aircraft  
internally mounted receiver;  
said aircraft communication signal has a frequency of about one gigahertz  
(GHz), said frequency preselected to reduce a signal attenuation; and  
said signal attenuation allows for a distance range between each  
antenna and the aircraft receiver.

10. (original) The communication system of claim 9 further comprising:  
said distance range between each antenna and the aircraft  
mounted receiver being between about 1.2 meters and about 62 meters.

11. (original) The communication system of claim 6 further comprising:  
said transfer voltage comprising about a 270 volt direct current  
(DC);  
said about 270 volt DC transfer voltage forming a differential pair of  
about  $\pm 135$  volt DC voltages;  
a first of said pair of about  $\pm 135$  volt DC voltages being in  
communication with the transmit antenna; and  
a second of said pair of about  $\pm 135$  volt DC voltages being in  
communication with the receive antenna.

12. (original) The communication system of claim 6 wherein said receive antenna receives a data communication signal in a frequency range lying between about 12 gigahertz (GHz) and about 20 GHz.

13. (original) The communication system of claim 12 wherein said transmit antenna transmits the data communication signal in a frequency range lying between about 14 GHz and about 44 GHz.

14. (original) The communication system of claim 6 further comprising:  
said system equipment groups each include at least internal power equipment for the antenna, position control equipment for the antenna, at least one power converter for the antenna, a radio frequency monitor, and at least one of an Up-converter and a Down-converter.

15. (original) The communication system of claim 6 further comprising:  
said transfer converter converts the transfer voltage within each housing to an antenna operating voltage of about 5 volts direct current to operate each antenna.

16. (currently amended) An aircraft phased array antenna communication system providing antennas and antenna servicing equipment in at least one aircraft mounted structure, said system comprising:

at least two antenna discs externally mounted on an aircraft fuselage adjacent and in a fore-aft orientation with respect to each other, each disc forming one of a transmit antenna housing and a receive antenna housing;

the transmit antenna housing and the receive antenna housing each having a plurality of phased array antenna elements disposed therein;

each of the plurality of phased array antenna elements being connectably joined to a surface of a pre-selected antenna disc for one of transmitting and receiving an electromagnetic signal;

said electromagnetic signal being one of a transmit frequency and a receive frequency;

a power and control equipment group positioned within each said disc;  
and

each said equipment group operable to converts between one of the transmit frequency and the receive frequency and an aircraft communication signal frequency.

17. (original) The communication system of claim 16 wherein said equipment group comprises at least a converter to convert an aircraft voltage to an antenna operating voltage being about 5 volts direct current.

18. (original) The communication system of claim 16 further comprising:  
said electromagnetic signal transmit frequency selected from a  
frequency range between about 14 gigahertz (GHz) and about 44 GHz; and  
said electromagnetic signal receive frequency selected from a  
frequency range between about 12 GHz and about 20 GHz.

19. (original) The communication system of claim 18 further comprising:  
an Up-converter to convert said aircraft communication signal  
frequency to the transmit frequency; and  
a Down-converter to convert said receive frequency to the  
aircraft communication signal frequency.

20. (original) The communication system of claim 19 wherein said aircraft  
communication signal frequency is selected from a frequency range between an ultra-  
high frequency and an L-band frequency.

21. (original) The communication system of claim 20 wherein said aircraft  
communication signal frequency comprises a frequency about one GHz.

22. (currently amended) The communication system of claim 19 wherein said  
up-converter is disposed within the transmit antenna housing.



23. (currently amended) The communication system of claim 19 wherein said Down-converter is disposed within the receive antenna housing.

24. (currently amended) The communication system of claim 16 further comprising:

the transmit antenna housing and the receive antenna housing together forming an antenna housing pair;

said antenna housing pair disposed on an upper surface location of the aircraft fuselage; and

said upper surface location circumferentially proximate to a wing leading edge intersection with the aircraft fuselage.

25. (currently amended) The communication system of claim 23 wherein the transmit antenna housing and the receive antenna housing form a fore-aft antenna housing arrangement.

26. (new) The antenna system of claim 1, wherein each of said first and second antenna housings further include a substantially tear-drop shape.

27. (new) A phased array antenna communication system for external mounting on a mobile platform comprising:

a pair of multiple element phased array antennas including a transmit antenna and a receive antenna;

a transmit antenna housing for enclosing the transmit antenna and  
a transmit antenna equipment group;

a receive antenna housing for enclosing the receive antenna and a  
receive antenna equipment group;

wherein each of said transmit and receive antenna housings further  
include a substantially tear-drop shape adaptable to be entirely external to the mobile  
platform; and

wherein a depth of said transmit and receive antenna housings is  
determinable by a space envelope of the transmit and receive antennas, said transmit  
antenna equipment group and said receive antenna equipment group being each  
positionable adjacent the space envelope of respective ones of the transmit and receive  
antennas without increasing said depth.